

February 28, 2003

TO: Internal File

FROM: James D. Smith, Senior Environmental Scientist, Team Lead

RE: Mill Fork Lease Extension of the Deer Creek Mine, Energy West Mining, PacifiCorp, Deer Creek Mine, C/015/018-PM01I-3

**SUMMARY:**

The Division determined Mill Fork Lease PAP administratively complete on December 18, 2001. Technical Analysis TA C/015/018-PM01I, which was sent to the operator in January 2002, identified numerous deficiencies. The USFS identified additional issues in a letter to the Division dated February 25, 2002, and a copy of the USFS letter was forwarded to the Permittee. Because of the USFS letter, the Permittee requested and was granted an extension in responding to TA C/015/018-PM01I.

The Permittee's response was received April 18, 2002. A letter from the USFS regarding the Permittee's April 18 response was received by the Division on June 20, 2002, but a copy did not get forwarded to the Permittee at that time. The Division sent TA C/015/018-PM01-1 on October 9, 2002, and the Permittee's response was received December 4, 2002. Because of recent changes in the Coal Mining Rules regarding water replacement, the Permittee added a plan for replacement of water supplies. The USFS sent the Division a letter, dated January 16, 2003, stating that none of the concerns from their June 20 letter had been addressed. The Division faxed a copy of the USFS letter to the Permittee on January 27, 2003.

TA C/015/018-PM01-2 was sent to the Permittee on January 31, 2003, and the Permittee responded on February 13, 2003; this response also addresses the concerns in the June 20, 2002 USFS letter.

This Tech Memo is for the February 13 submittal. There are no deficiencies and approval of the Mill Fork Lease PAP, Volume 12 of the Deer Creek Mine PAP, is recommended.

TECHNICAL MEMO

Incoming to Division	Date	Outgoing from Division	Date
Initial submittal of the Mill Fork Lease PAP.	October 29, 2001	Administratively complete	December 18, 2001
		TA PM01I	February 4, 2002
USFS letter	February 25, 2002	USFS letter forwarded to Permittee	
Response to TA PM01I and USFS letter.	April 18, 2002		
USFS letter - deficiencies in the April 18 response.	June 20, 2002		
		TA PM01-1	October 9, 2002
Response to TA PM01-1	December 4, 2002		
USFS letter – June 20, 2002 deficiencies not addressed.	January 16, 2003	USFS June 20, 2002 letter faxed to Permittee.	January 27, 2003
		TA PM01I-2	January 31, 2003
Response to TA PM01-2 and USFS deficiencies.	February 13, 2003	TA PM01I-3	On or about February 28, 2003

**TECHNICAL ANALYSIS:**

## **GENERAL CONTENTS**

**Analysis:**

Except for Maps MFU1837D – Coal Ownership and MFS1838D – Surface Ownership, all General Information has been removed from Volume 12 and moved to Volume 1 of the Deer Creek Mine MRP.

**Findings**

This information was previously determined adequate to meet the requirements of the Coal Mining Rules.

## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## **HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

**Analysis:**

*Water Replacement*

Because of recent changes regarding water replacement in the Coal Mining Rules, a deficiency requiring a plan for replacement of water supplies was included in an earlier technical analysis. As defined in R645-301-100 of the Coal Mining Rules,

“Water Supply”, “State-appropriated Water”, and “State-appropriated Water Supply” are all synonymous terms and mean, for the purposes of the R645 Rules, state appropriated water rights which are recognized by the Utah Constitution or Utah Code.

Under rule R645-301-525.400, if the Division determines that subsidence could adversely affect state-appropriated water supplies through damage, diminution in value or foreseeable use; or that contamination, diminution, or interruption could occur, the application must include a subsidence control plan that contains information in accordance with:

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TECHNICAL MEMO

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R645-301-525.400 ... measures to be taken in accordance with R645-301-731.530 and R645-301- 525.500 to replace adversely affected State-appropriated water supplies ....

R645-301-525.480. A description of the measures to be taken in accordance with R645-301-731.530 and R645-301- 525.500 to replace adversely affected State-appropriated water supplies ...

R645-301-731.530. State-appropriated water supply. The permittee will promptly replace any State-appropriated water supply that is contaminated, diminished or interrupted by UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES conducted after October 24, 1992, if the affected water supply was in existence before the date the Division received the permit application for the activities causing the loss, contamination or interruption. The baseline hydrologic and geologic information required in R645-301-700. will be used to determine the impact of mining activities upon the water supply.

The probability of subsidence causing such impacts or adverse affects in and adjacent to the Mill Fork Lease is small (PAP, section R645-301-728, E.; and R645-301-728, I. 2.), but because a possibility exists, the water replacement rules apply.

Little Bear Spring is of particular concern. Direct impacts are not likely, but the primary source of recharge to this spring is the runoff from upper Mill Fork Canyon, which flows to Little Bear Spring by way of the creek in Mill Fork Canyon and the Mill Fork Graben. The report by Mayo and Associates in Appendix B (PAP, section R645-301-700) concludes that Mill Fork is the primary source of recharge to Little Bear Spring. (Based on an AquaTrack™ survey that is not cited in the PAP, it has been estimated that 60 to 70 percent of the Little Bear Spring discharge comes from upper Mill Fork Canyon through Mill Fork Graben.)

Between Mill Fork and Little Bear Canyons, the down-plunge end of the Crandall Canyon Syncline intercepts the Mill Fork Graben and could provide part of the recharge to Little Bear Spring. When operations in the Trail Mountain Mine exposed the Spring Canyon Member in the down-plunge end of the Straight Canyon Syncline, ground water under pressure entered the mine at a rate of 200 to 300 gpm until the Spring Canyon Member was depressurized (PAP, section R645-301-700, Appendix B, page 72). A possibility exists that mining in the Mill Fork tract could depressurize the water in the Crandall Canyon Syncline and impact some portion of the flow at Little Bear Spring.

The Crandall Canyon Syncline, and the potential that mining in this syncline will impact the hydrologic balance in and adjacent to the Mill Fork Lease, Little Bear Spring in particular, are discussed in the PHC in section R645-301-728, I. 1. Exploration boreholes along the trough of the Crandall Canyon Syncline did not have measurable ground-water inflow from the

Blackhawk Formation and Star Point Sandstone. The potential for mining to impact ground water in the Crandall Canyon Syncline is very low.

Subsidence could intercept or interrupt flow from upper Mill Fork Canyon, where precipitation and runoff are greatest, and produce a proportional decrease in the flow at Little Bear Spring (PAP, section R645-301-700, Appendix B, page 127). Going on the basis that 65 percent of Little Bear Spring flow is from Mill Fork, then a 20 to 25 percent reduction of flow in Mill Fork could produce a reduction of flow at Little Bear Spring on the order of 10 to 15 percent. The potential for interception of ground-water flow by subsidence is also low.

Because possible impacts to Little Bear Spring exist, areas within the Mill Fork tract are “renewable resource land” under the Coal Mining Rules and subject to specific regulations and protection. There are also other State-appropriated water supplies in and adjacent to the Mill Fork Lease, identified in R645-301-600, Appendix C of the PAP, covered by the same water replacement regulations. Replacement of State-appropriated water supplies is discussed briefly in section 731.530, which refers to Table MFHT-2. Table MFHT-2 lists:

- Surface- and ground-water rights within and adjacent to the Mill Fork Lease;
- The name associated with the spring or stream/drainage;
- The location of the water right;
- What development has been done;
- Ownership;
- The amount of water claimed in the water right;
- The amount of water documented by the Permittee with baseline data;
- Water-rights shares owned by PacifiCorp that could be used for water replacement;
- Specific steps listed under Mitigation Review that will be followed as part of the process to determine if remediation is needed, including annual consultation with the water-right owners; and
- Specific steps listed under Mitigation Alternatives that will be implemented if replacement becomes necessary:
  - Rehabilitate the spring source using BTCA;
  - Transfer water rights to adjacent ground-water sources (refer to Map MFS1832D for locations of water rights);
  - Establish permanent ground-water collection and distribution systems, i.e., Guzzlers; and
  - For Little Bear Spring, negotiate a mitigation agreement.

These constitute a plan sufficient to satisfy the water replacement requirements in the Coal Mining Rules. The water replacement information in section 731.530 and Table MFHT-2 is referenced in section R645-301-525 in the engineering section.

**TECHNICAL MEMO**

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**Findings:**

Hydrologic Resource Information is considered adequate to meet the requirements of this section.

**RECOMMENDATIONS:**

Approval of the Mill Fork Lease Extension of the Deer Creek Mine is recommended.